

BT QAM PRO

INSTRUCTION MANUAL

CATV Analyzer




BT-QAM-PRO Stock No. 4229
QAM / 8VSB DIGITAL CATV ANALYZER, 5-1000 MHz



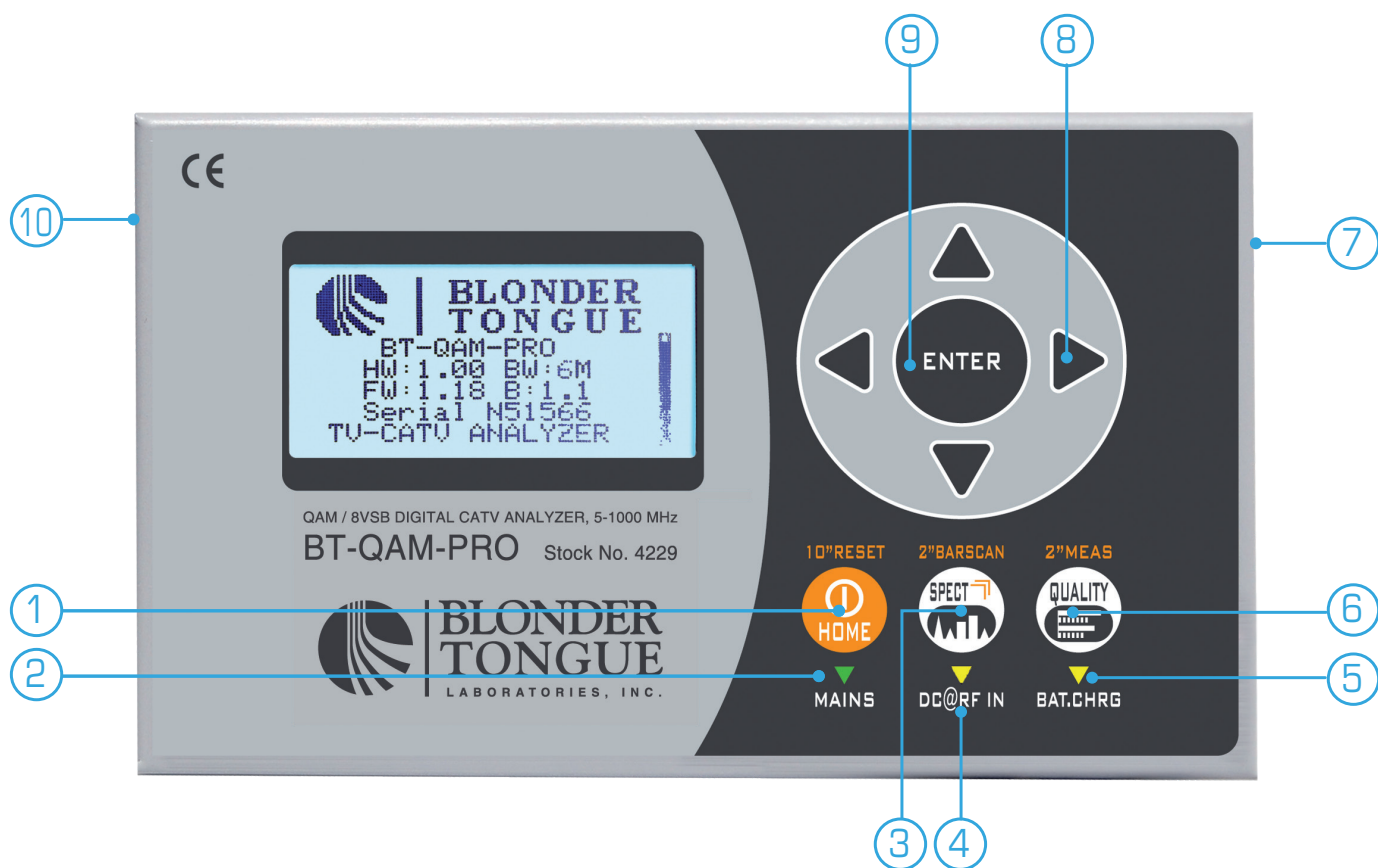
Blonder
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Front Panel & Keys



N.	Name	Function
1	HOME Key	Press to turn on. Keep pressed to turn off.
2	MAINS	LED on when the meter is connected to the USB power supply
3	SPECT Key	Press to display spectrum
4	DC@RF	LED DC@RF indicator
5	BAT. CHRG	LED on during battery charge
6	QUALITY Key	Press to display signal quality
7	RF TV Input	TV/CATV input connector 5-1,000 MHz
8	Arrow keys	Press to select and adjust values/fields
9	ENTER	Press to select/confirm
10	USB/Power Supply	5 V power supply connector via MICRO-USB and for PC connection

NOTE :

This meter can be charged and used directly from a PC via the USB socket, or using any MICRO-USB, 5V, 1A power supply.

Navigation

• POWER



To turn on press the 'HOME' key.



To turn off, press and hold the 'HOME' key.

• ARROW KEYS



Press the arrow keys to select the menu required or to adjust the value in a selected field (number/menu).

• ENTER



Press to select a menu or to confirm.

• RESET HARDWARE



With the meter turned on keep the 'HOME' key pressed for 10 seconds and then turn on again.

• RESET SOFTWARE



With the meter turned off, turn the instrument on keeping the "ENTER" key pressed and only release when the boot has been completed.

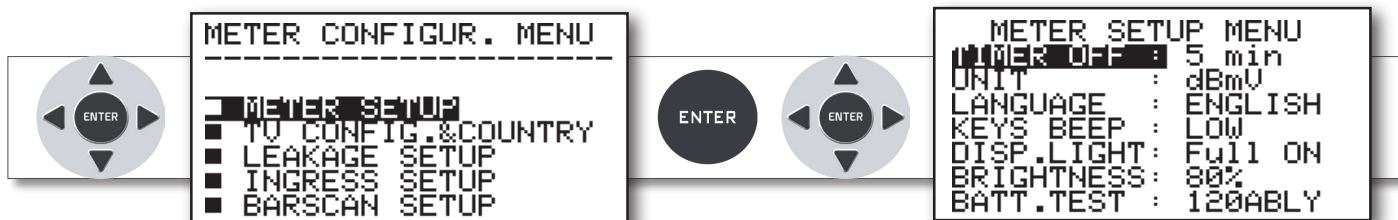
Configurations

Press the 'HOME' key, use the arrow keys to select "CONFIG", then press "ENTER".



Use the arrow keys to select and adjust the settings/values in the various menus.

CONFIGURATION OF THE INSTRUMENT'S PARAMETERS:



COUNTRY CONFIGURATION & DISCOVERY MODE:

Discovery variables are QAMB Only, QAMA Only (N/A for USA), VSB (8VSB for Broadcast/OTA) and All Mod..

All Mod. includes all prior digital modulation schemes.

All schemes include Analog. Using All Mod. will make the discovery time take longer as the meter searches through more modulation possibilities to find a match.

The typical setting when using the meter on a CATV feed is USACAB and QAMB.

NOTE: This setting also populates the Master TV Plan parameter on page 8.



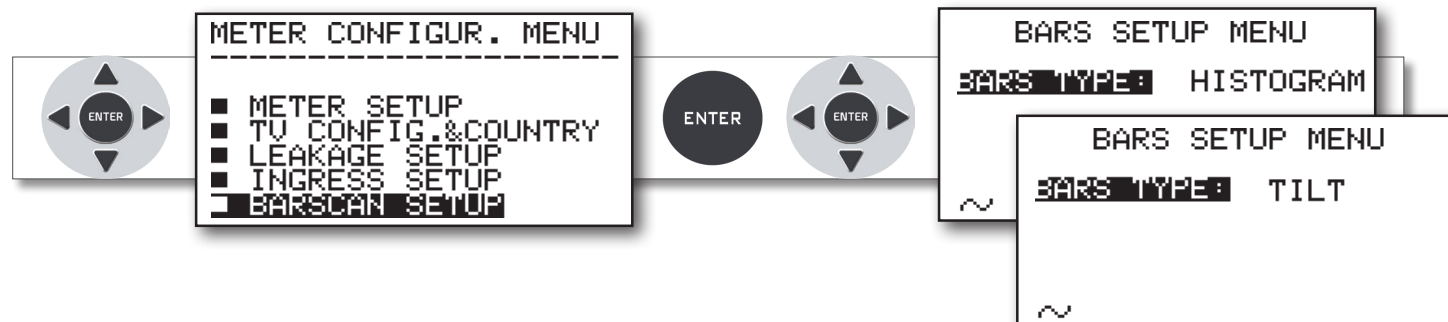
LEAKAGE PARAMETERS CONFIGURATION:



INGRESS PARAMETERS CONFIGURATION:

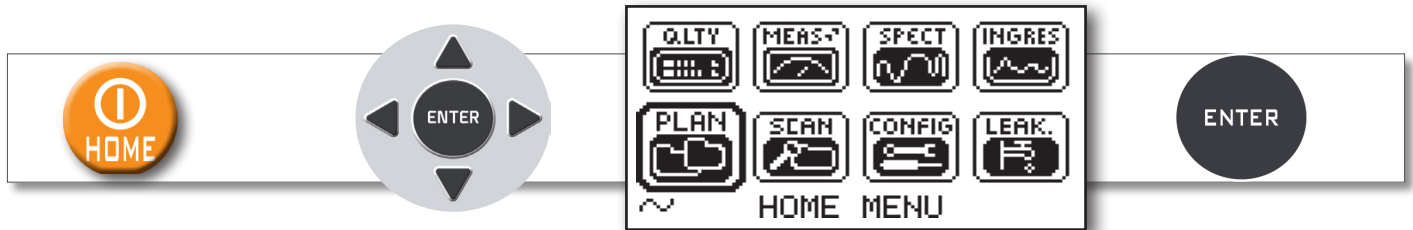


BARSCAN PARAMETERS CONFIGURATION:



“PLAN” Screen and Navigation

Press the “HOME” key, use the arrow keys to select “PLAN”, then press “ENTER”.



Use the UP/DOWN arrow keys to select the TV MASTER (Tv MASTER PLAN) memory plans you wish to use, manual (MANUAL MEMORY) or automatic (AUTOtv MEMORY).

MASTER TV PLAN SELECTION:



MANUAL MEMORY SELECTION:

Use the TvMaster Plan when the formats of channels to be measured are not known. The meter will “auto discover” based on settings done under Country Configurations and Discovery Mode set up on page 5.

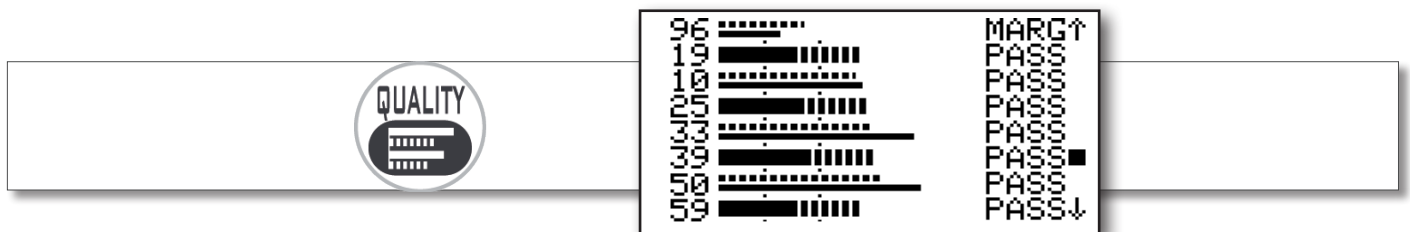
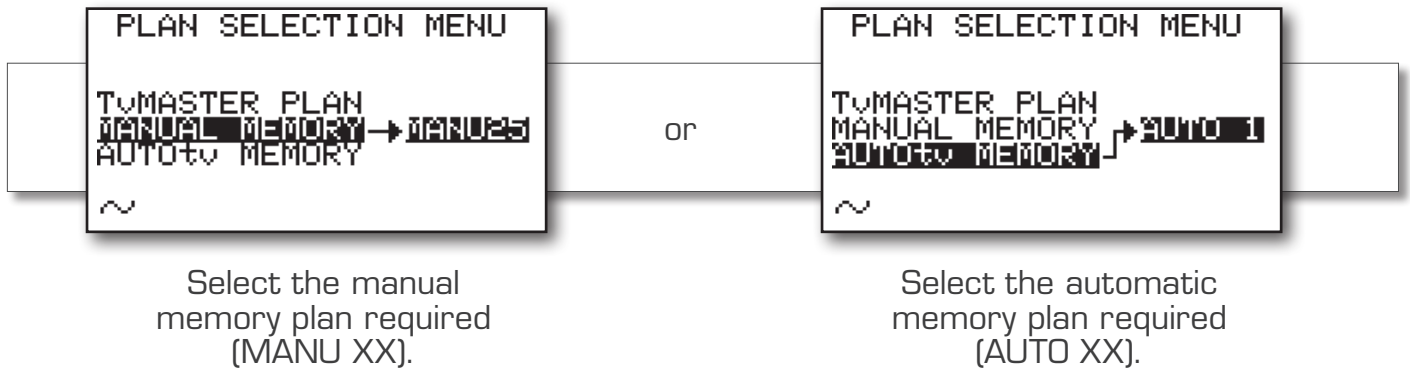


AUTO MEMORY SELECTION:



QUALITY measurement screen

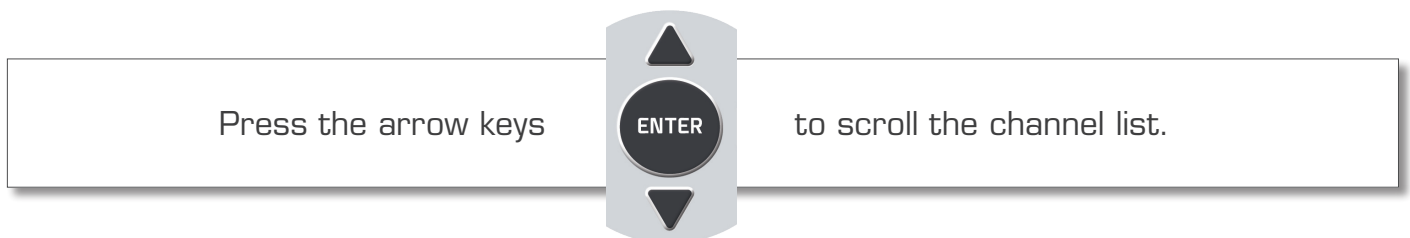
Measure the quality and power of up to 140 channels in blocks of 8 channels.



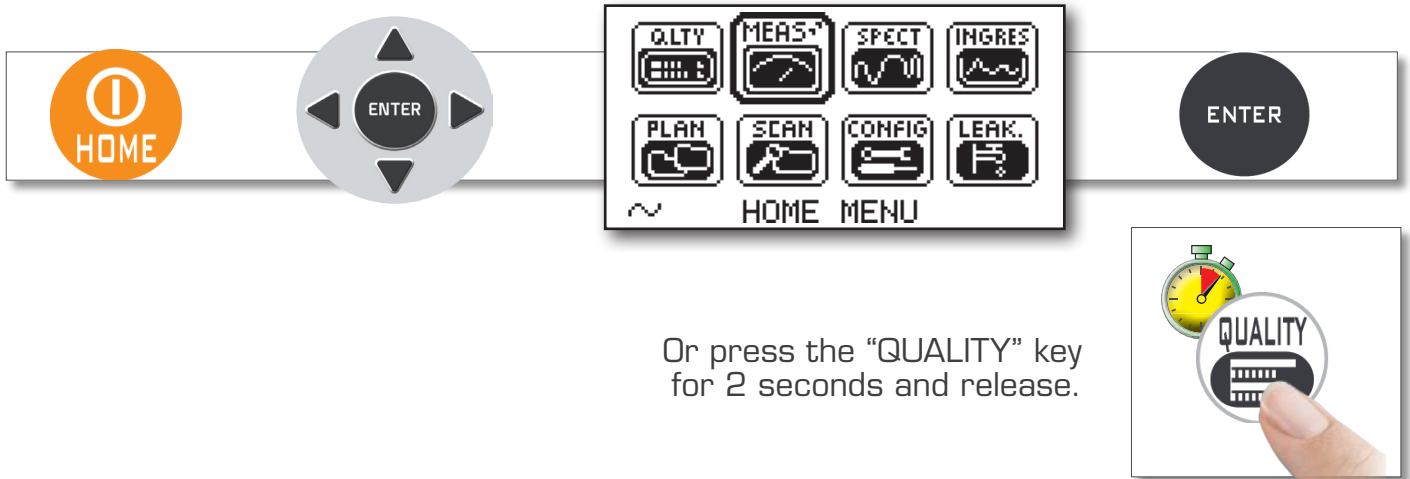
DIGITAL CHANNEL:



ANALOG CHANNEL:

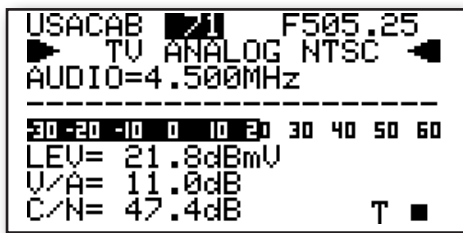


Press the "HOME" key, use the arrow keys to select "MEAS", then press "ENTER".



Analog TV Measurement screen

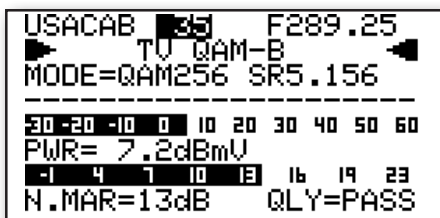
Use the "LEFT" and "RIGHT" keys to select the field required.
Use the "UP" and "DOWN" arrow keys to adjust the value. Keep pressed to rapidly adjust.



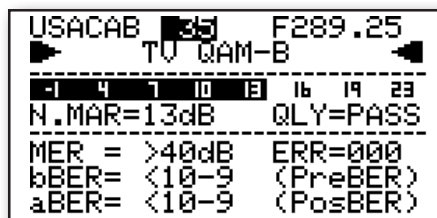
Signal Level (LEV) Report
carrier VIDEO-AUDIO (V/A)

Digital CATV Measurement screen

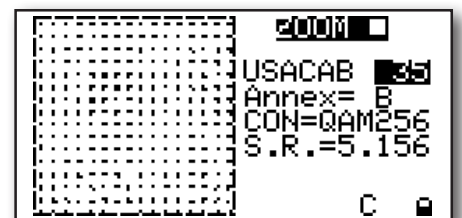
Repeatedly press the "ENTER" key to navigate in the TV measurement screens.
Use the "LEFT" & "RIGHT" keys to select the field required.
Use the "UP" & "DOWN" arrow keys to adjust the value.
Keep pressed to rapidly adjust.



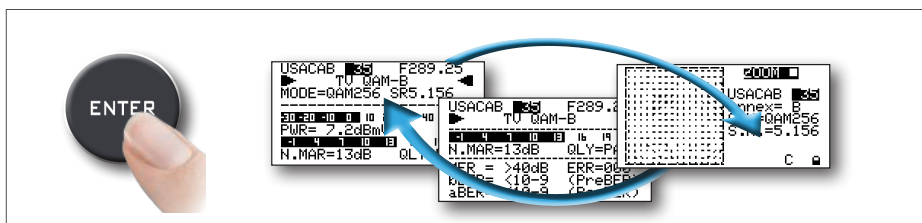
Digital Average Power (PWR)
Noise Margin (N.MAR)
Quality (QLY)



MER
BER before Viterbi (bBER)
BER after Viterbi (aBER)



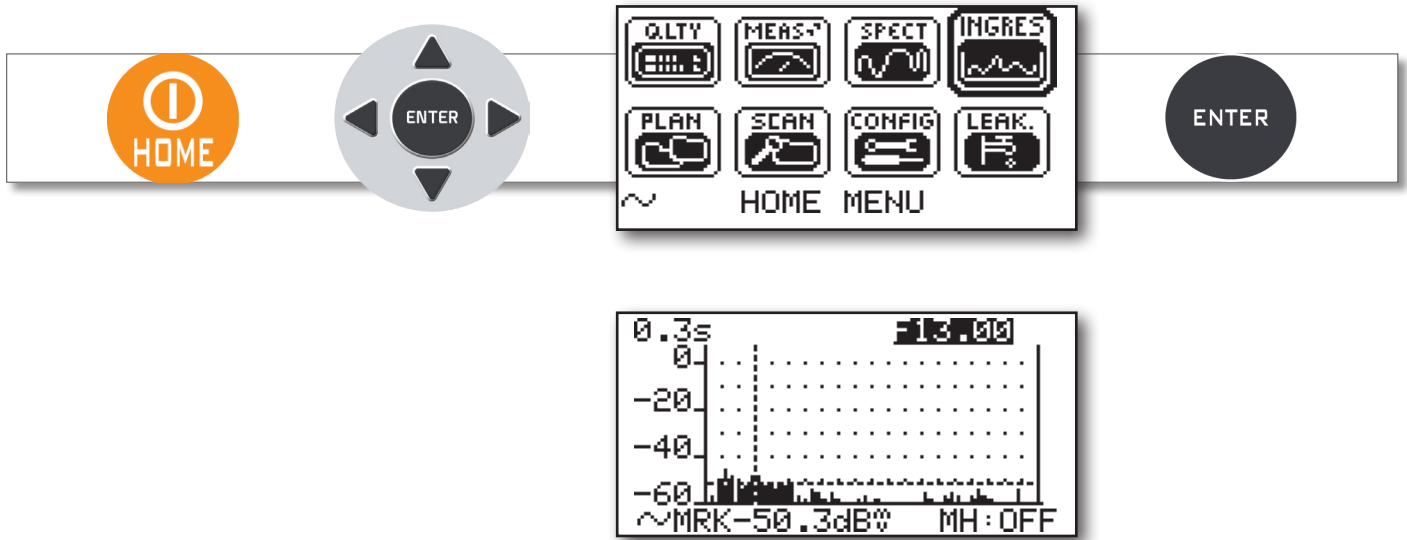
QAM Constellation



Press to navigate
in the TV
measurements

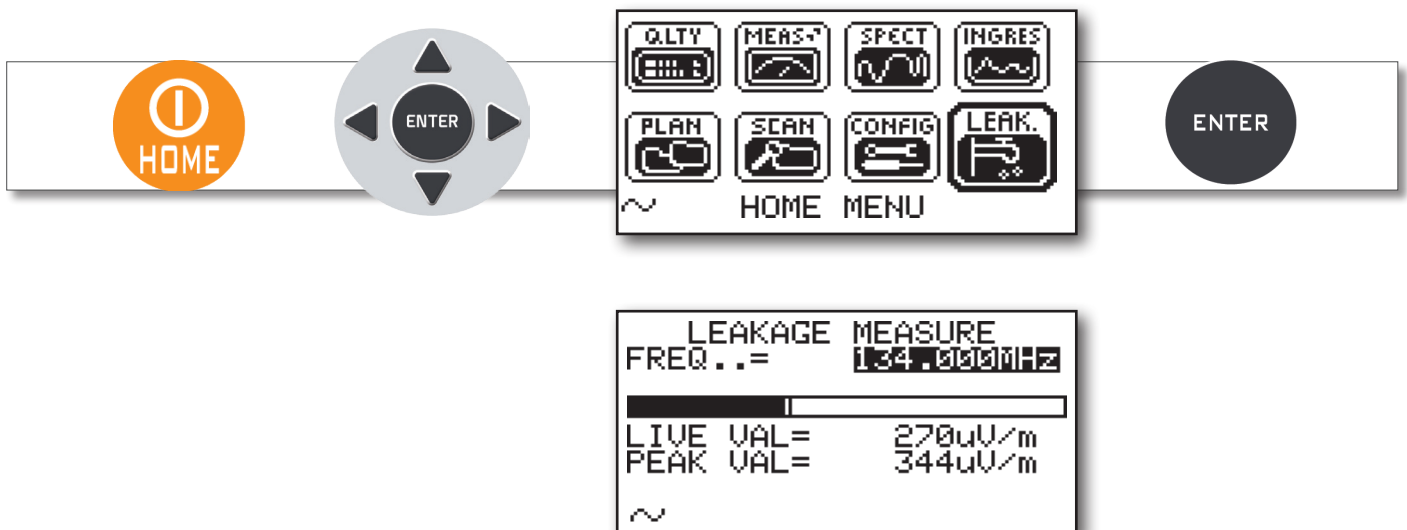
INGRESS MEASUREMENT SCREEN

Press the "HOME" key, use the arrow keys to select "INGRESS", then press "ENTER".



LEAKAGE MEASUREMENT SCREEN

Press the "HOME" key, use the arrow keys to select "LEAK", then press "ENTER".



Press the "SPECT" key to go to Spectrum mode



Or press the "HOME" key, use the arrow keys to select "SPECT", then press "ENTER".

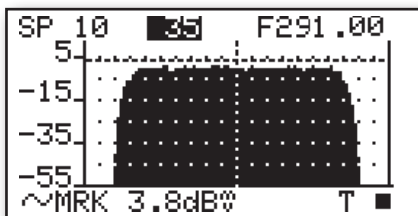


SPECTRUM ANALYZER SCREENS

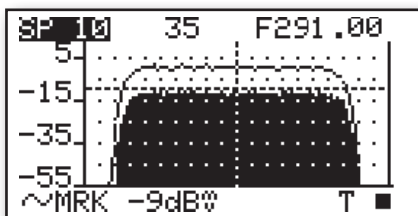


Use the arrow keys to select and adjust the spectrum's numerical values: SPAN (SP) - CHANNEL - FREQUENCY (F) - REFERENCE LEVEL

DIGITAL TV SIGNALS SPECTRUM

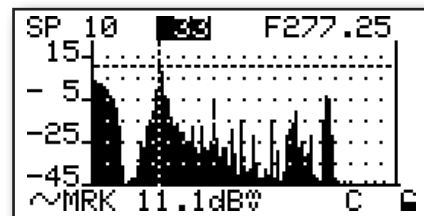


Fast spectrum (PEAK SPECTRUM)

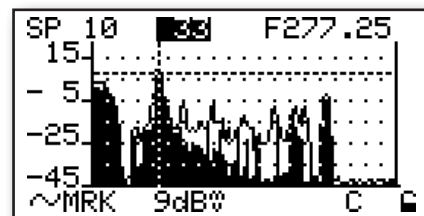


Fast spectrum with memory peak (HOLD SPECTRUM)

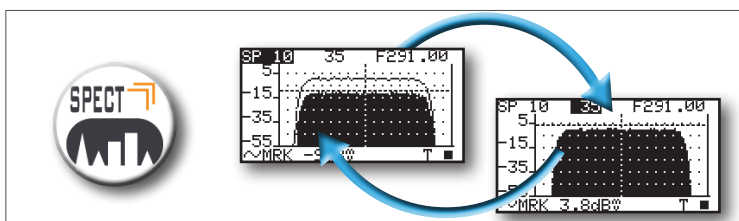
ANALOG TV SIGNALS SPECTRUM



Fast spectrum (PEAK SPECTRUM)



Fast spectrum with memory peak (HOLD SPECTRUM)



Press to cycle through spectrum analyzer screens

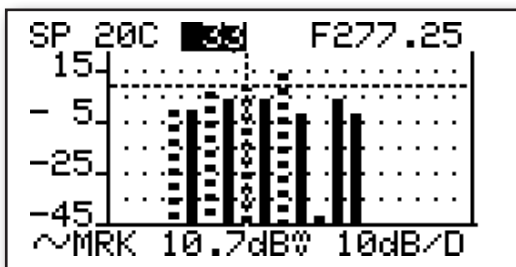
TV: BARSCAN level/power of all channels _____

In the TV standard channelization the meter displays the level/power of all TV channels. In MANUAL MEMORY or AUTOMATIC TV MEMORY (AUTOtv MEMORY) the meter displays the memorized channels and distinguishes analog and digital signals using two different bars.

Press the "SPECT" key for 2 seconds to visualize the Barchart



Use the arrow keys to select and change the barchart's numerical values:
SPAN (SP) - CHANNEL - FREQUENCY (F) -
RESOLUTION (dB/D) - REFERENCE LEVEL

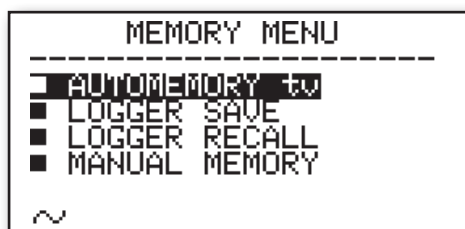
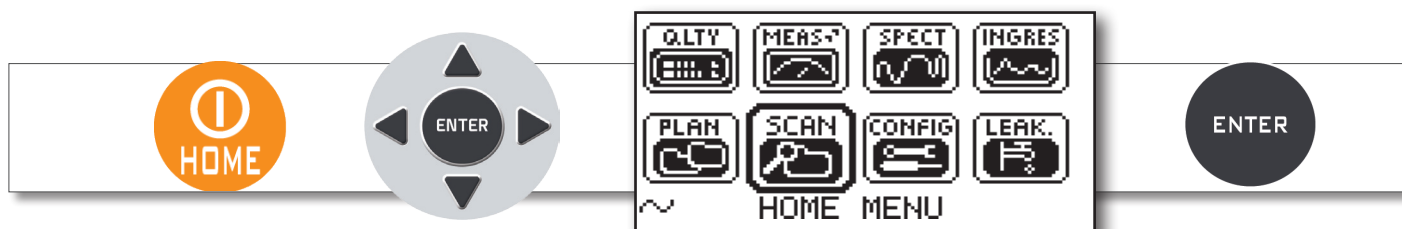


Barscan (level bar chart)

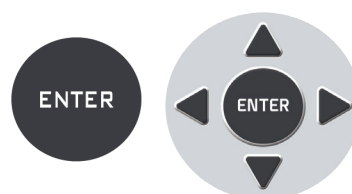
SCAN: channel plans and log files

TV: AUTOMEMORY TV

To automatically store all the existing channels in a city or building.
Press the "HOME" key, using the arrow keys select "SCAN", then press ENTER.



select
"AUTOMEMORY TV"



Use the arrow keys to
select and change the
required parameters

Select "DESTINAT" and select the destination file "AUTO" where the search must be saved (fig 1).

Select "DISCOVERY" and set search mode (fig 1),

Select "LEVEL" and set the minimum level threshold of the analog channels searched (fig 1).

Select "POWER" and set the minimum power level of the digital channels searched (fig 1).

Select "START" to create a new channel plan and to activate the search (fig 1).

NOTE:

If the word "OVERWRITE" appears, the selected file will be overwritten.

Wait a few minutes (fig 2), the meter indicates the recorded ANALOG & DIGITAL CHannels (fig 3).

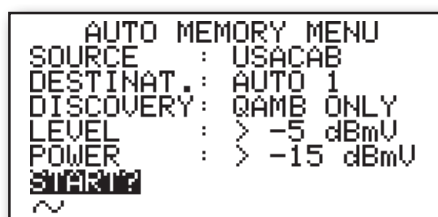


Fig 1
Set the desired parameters
and select "START"

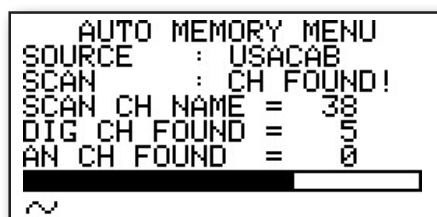


Fig 2
Memorization in progress

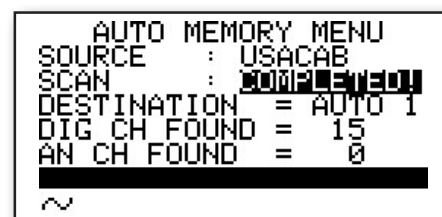


Fig 3
Memorization complete

TV: MANUAL MEMORY

User must select MANUAL MEMORY in the PLAN menu (page 6) before changes can be made here.

“THIS PLAN IS NOT MODIFIABLE” message will be displayed if the PLAN is not Manual.

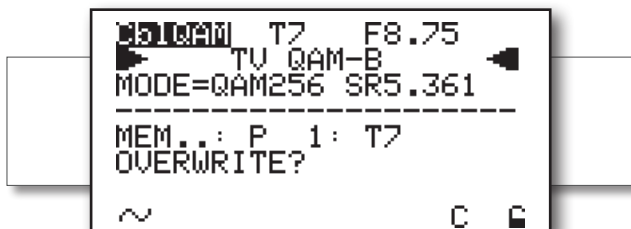
How to create/edit a manual memory plan:



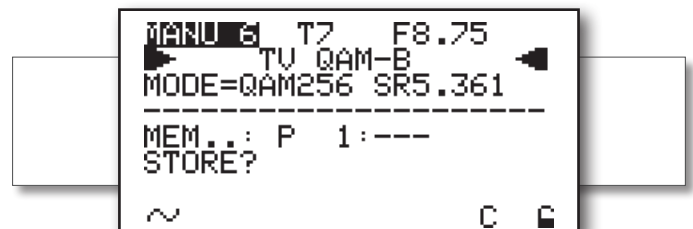
Press the “HOME” key, use the arrow keys to select “SCAN”, then press “ENTER”.



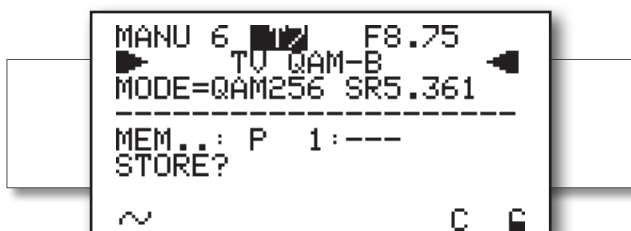
Select “MANUAL MEMORY” and press “ENTER”



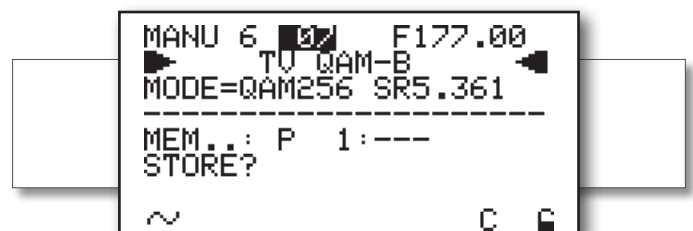
Use the “LEFT” and “RIGHT” keys and select the item “PLAN” (in the example “Cb1QAM”)



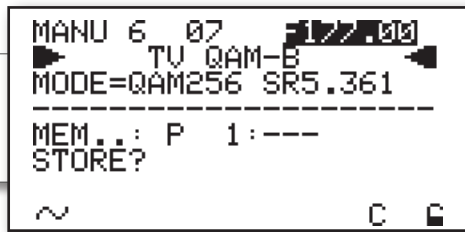
Use the “UP” and “DOWN” keys and choose the manual plan required (for example “MANU 6”)



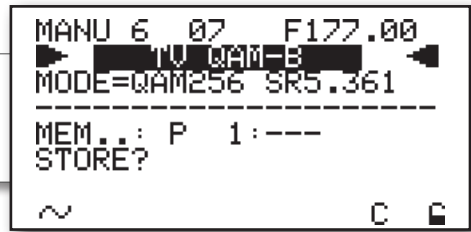
Use the “LEFT” and “RIGHT” keys and select the item “CHANNEL” (in the example “T7”)



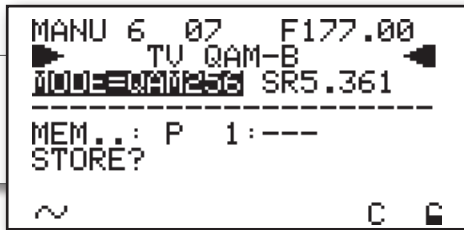
Use the “UP” and “DOWN” keys and choose the channel required (for example “07”)



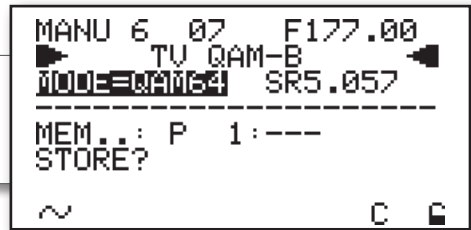
Use the “LEFT” and “RIGHT” keys and select the item “FREQUENCY” (in the example “F177.00”).
 Use the “UP” and “DOWN” keys and select the frequency required



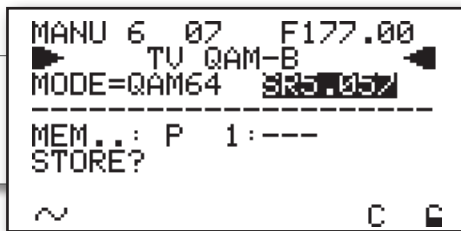
Use the “LEFT” and “RIGHT” keys and select the item “MODULATION” (in the example “TV QAM-B”). Use the “UP” and “DOWN” keys and select the type of modulation required



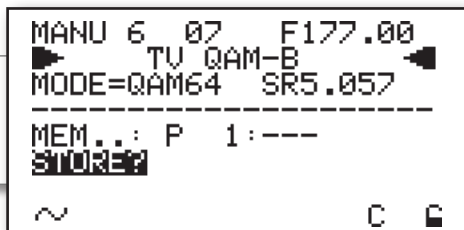
Use the “LEFT” and “RIGHT” keys and select the item “CONSTELLATION” (in the example “QAM256”)



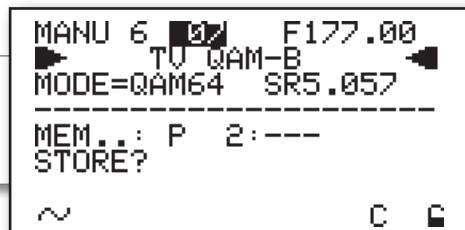
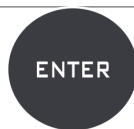
Use the “UP” and “DOWN” keys and choose the value of constellation required (for example “QAM64”)



Use the “LEFT” and “RIGHT” keys and select the item “SR” (Symbol Rate) (in the example “SR5.057”).
 Use the “UP” and “DOWN” keys to choose the value of symbol rate required (selectable only in QAM-A mode)



Use the “LEFT” and “RIGHT” keys and select “STORE”, then press “ENTER” to memorize



Channel “07” now is memorized in memory position “P 1/”MANU 6”

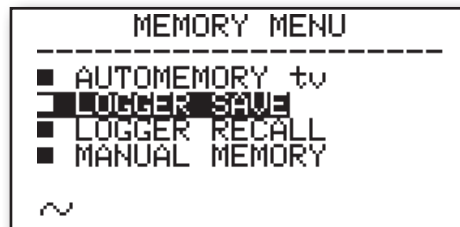
NOTE: When the memorization of a channel has finished, follow the steps described above to add other channels in the same memory plan, or in a new one.
 The instrument automatically suggests the zone “MEM ..: Pxx: ___”, the memory position where you can save or overwrite the new channel.

LOGGER

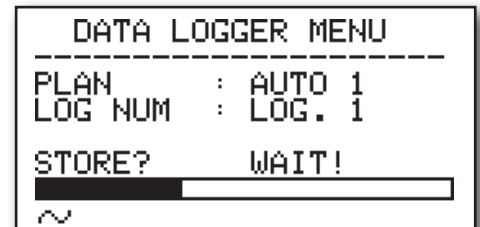
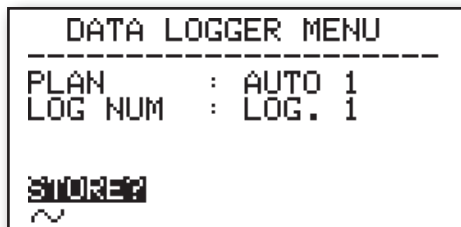
Use the arrow keys to select and change the items/values in the various menus.

LOGGER SAVE

Press the "HOME" key, use the arrow keys to select "SCAN", then press "ENTER".



Select LOGGER SAVE and press "ENTER".



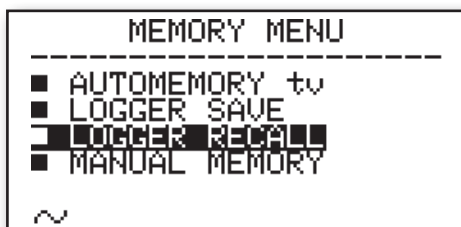
Set the desired parameters and select "STORE?" to create a new LOG file.

"DATA LOGGER" in progress.

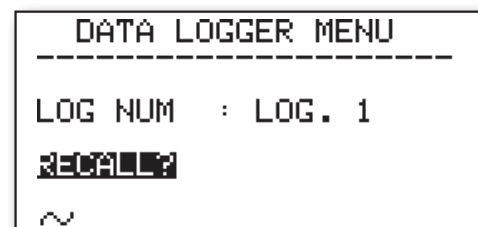
NOTE:

If the word "OVERWRITE" appears, the selected log will be overwritten. Wait a few minutes for the Datalogger to complete.

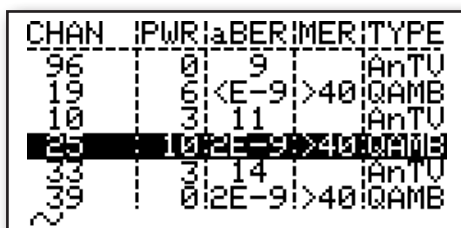
LOGGER RECALL



Select "Logger RECALL" and press "ENTER".



Select the "LOG" (LOG NUM) number to be recalled and select "RECALL".



Press the arrow keys to select the measurement of the required signal.



Battery Test & Battery Regeneration

THIS PROCEDURE EXPLAINS HOW TO REGENERATE/CHECK YOUR BATTERIES AND CALIBRATE THE BATTERY CHARGE INDICATOR

USEFUL ADVICE:

- CHARGE THE BATTERIES EVERY NIGHT AFTER USE, EVEN IF THEY ARE NOT COMPLETELY DISCHARGED;
- ALWAYS USE THE “BATTERY SAVE” & “TIMER OFF” FUNCTIONS TO INCREASE YOUR METER’S AUTONOMY;
- THE MAXIMUM CAPACITY OF THE BATTERIES AND BATTERY CHARGE INDICATOR’S ACCURACY IMPROVES BY UP TO 20% IF YOU CARRY OUT MANY BATTERY TEST CYCLES;
- DO NOT REPLACE THE BATTERIES: FIRST CARRY OUT 3 TO 5 BATTERY TEST CYCLES UNTIL YOU RECOVER THE MAXIMUM CAPACITY OF THE BATTERIES.

“BATTERY TEST” INSTRUCTIONS & PROCEDURE:

1. Before carrying out the test, connect the meter to the battery charger:
 - Turn on the meter;
 - Press the Home key (fig. 1);
 - Select the word “CONFIG” and press “ENTER” to confirm (fig. 1);
 - Select “METER SETUP” and press “ENTER” (fig. 2);
 - Select the word “BATT. TEST” and press the “RIGHT” keys to select “ON”;
 - Press “ENTER” to confirm.
 - Carefully read the various screens, pressing “ENTER” in succession;
 - In the last instructions window, select “START” and press “ENTER” to start the test.

WARNING: the procedure will be cancelled if you select “exit” on any screen.



FIG. 1*

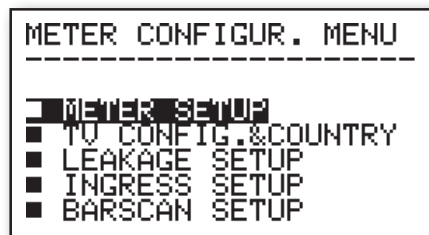


FIG. 2*

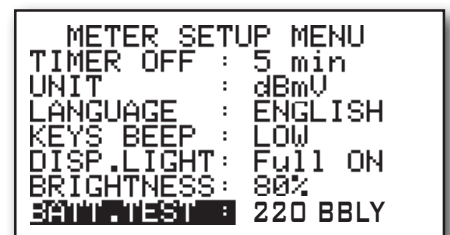


FIG. 3*

IMPORTANT ADVICE:

- Do not connect any type of load to the “F” input connector (LNB, TV head-end, amplifiers, etc.).
2. The battery test takes approx. 12 hours (charging/discharging/recharging activities and measurement of the battery autonomy), during this time the meter must not be used. At the end of the test the meter will turn off automatically. In order to make sure that the test has been carried out correctly, all the meter’s commands are blocked except for the reset function, which remains active so that the meter can be turned off if necessary.
 3. The batteries will be completely charged at the end of the test.
 4. To check the battery test results, enter “METER SETUP” (fig. 2), select “BATTERY TEST” function and read the results: for example 220BBLY (fig. 3) = 220 minutes. The “Y” of YES confirms that the battery is still good enough, whereas an “N” for NO indicates that it could be faulty, too deteriorated or that the cycle was interrupted.

IMPORTANT NOTES:

If the test is interrupted using “reset”, the battery charge indicator may provide incorrect indications, therefore repeat the battery test procedure.

LI-ION Polymer Batteries

IMPORTANT:

- ALWAYS TURN THE INSTRUMENT OFF BEFORE CONNECTING THE BATTERY CHARGER;
- DO NOT LEAVE THE BATTERIES DISCHARGED FOR LONG PERIODS;
- ALWAYS CHARGE THE BATTERIES AT NIGHT FOR AT LEAST 7 HOURS, EVEN IF THEY ARE NOT COMPLETELY DISCHARGED.

USEFUL INFORMATION:

1. The batteries supplied are high quality and tested individually, their autonomy depends on the following conditions:
 - the external temperature: with temperatures of less than 10°C, 20% of the capacity is lost;
 - the age of the batteries: a 10% loss in efficiency each year;
 - Remember that the TIMER OFF function, that automatically turns off the Meter after 5 or 10 minutes of inactivity, saves up to 30%.
2. The battery indicator has a tolerance (like all battery powered electronic devices) according to the following factors:
 - the battery's charging percentage;
 - external temperatures;
 - battery wear and tear;
 - +/- 2%.

ICONS SHOWING THE BATTERY CHARGE STATUS:



BATTERY AUTONOMY:

The battery autonomy is about 3 hours.



WARNINGS

RECHARGEABLE BATTERY

This device contains a built-in Li-Po (Lithium polymer) battery that can be recharged many times. The battery contains chemicals that might wear with time even if not used. Please dispose of batteries properly.

Do not take the battery pack apart or expose it to extreme temperatures (over 50°C). If the device has been exposed to very low or high temperatures, let it rest at room temperature before use.

RECHARGING THE BATTERY

The Battery must be recharged at room temperature (about 20°C) with the device turned off. To avoid premature failure of the battery never leave the device with an empty battery for prolonged periods.

Power Supply (mains) and Battery Charge (chrg) LED status



INSTRUMENT	CONNECTED TO THE MAINS POWER SUPPLY	▼ LED MAINS	▼ LED BATT CHRГ	NOTES
OFF	YES	ON	ON	Batteries in fast charge
OFF	YES	ON	OFF	Battery charge completed
OFF	YES	ON	Flashing 0.5 SECONDS OFF 0.5 SECONDS ON	Abnormal battery temperature. The recharge cycle has been suspended automatically and will automatically reset.

Meter Maintenance

CLEANING THE METER

Keeping the meter clean from dust and dirt is easy and helps maintain optimum working conditions over the years. The cleaning procedure is quick and simple and requires only minor attention.

Never use strong, chemical products (diluent) and/or abrasive materials, which may damage plastics and displays.

Always use a soft cloth, dampened with a solution of water and alcohol or a de-greasing, non-abrasive liquid soap.

The keyboard and display should be gently cleaned. Rubbing the keyboard and/or the display(s) may seriously damage their functions.

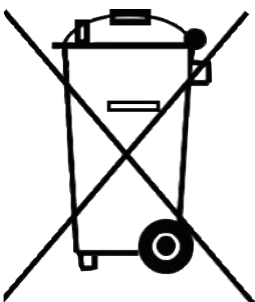
MAINTENANCE AND CARE OF THE METER

This meter has been designed to withstand severe conditions of use. Even so, its life can be prolonged by respecting some simple and effective rules:

- The meter has not been designed to withstand high temperatures (over 60°C or 140° F). These temperatures can be easily reached when the meter is left in a car, especially behind the windshield, or in a trunk. The LCD display and/or other details could easily be damaged by extreme temperatures.
- The internal battery could rapidly lose its efficiency if exposed to high or low temperatures. This may result in reduced meter autonomy when powered by its internal battery.
- When recharging the internal battery, allow good air circulation around the meter and the adapter: do not cover it with clothes and do not recharge the battery when the meter is in its transport case.
- The meter is not waterproof, even if it is protected against incidental water drops. If it comes into contact with water electronic circuits may be damaged. Allow the meter to dry thoroughly before trying to turn it on. Do not use hairdryers or other strong heating sources, just leave the meter at room temperature. If necessary, contact Rover Laboratories S.p.A. for technical assistance.

Disposal of Electronic Equipment

Disposal of electric / electronic equipment (applicable in all CEE countries and wherever a separate waste collection system is applied).



This symbol on the packaging indicates that the product should not be considered domestic waste. The product, at the moment of disposal, should be brought to a waste collection point with the proper facilities to manage electrical/electronic appliances. Electric/electronic appliances, if not disposed of correctly, may have negative consequences on your health and the environment. Furthermore, a proper recycling procedure helps maintain natural resources. For more information about the correct disposal of this product, please refer to your local waste disposal management offices or the shop where this product was bought.

Limited Warranty

Seller will at its sole option, either repair or replace (with a new or factory reconditioned product, as Seller may determine) any product manufactured or sold (or in the case of software, licensed) by Seller which is defective in materials or workmanship or fails to meet the applicable specifications that are in effect on the date of shipment or such other specifications as may have been expressly agreed upon in writing: (i) for a period of three (3) years from the date of original purchase for all stock hardware products (other than those specifically referenced herein below having a shorter warranty period); (ii) for a period of one (1) year from the date of original purchase, with respect to all MegaPort™, IPTV products, test equipment and fiber optics receivers, transmitters, couplers and integrated receiver/distribution amplifiers; (iii) for a period of one (1) year from the date of original purchase (or such shorter period of time as may be set forth in the license agreement specific to the particular software being licensed from Seller) with respect to all software products licensed from Seller (other than Core Product Software) that is (a) developed for a specific function or application, (b) complimentary to and does not function without the Core Product Software, and (c) listed with a specific model number and stock number in Seller's Price List ("Non-Core Software"); (iv) for a period of ninety (90) days from the date of original purchase, with respect to non-serialized products and accessories, such as parts, sub-assemblies, splitters and all other products sold by Seller (other than Core Product Software and Refurbished/Closeout Products) not otherwise referred to in clauses (i) through (iii) above. The warranty period for computer programs in machine-readable form included in a hardware product, which are essential for the functionality thereof as specifically stated in the published product specifications ("Core Product Software") will be coincident with the warranty period of the applicable hardware product within which such Core Product Software is installed.

Software patches, bug fixes, updates or workarounds do not extend the original warranty period of any Core Product Software or Non-Core Software. Notwithstanding anything herein to the contrary,

(i) Seller's sole obligation for software that when properly installed and used does not substantially conform to the published specifications in effect when the software is first shipped by Seller, is to use commercially reasonable efforts to correct any reproducible material non-conformity (as determined by Seller in its sole discretion) by providing the customer with: (a) telephone or e-mail access to report non-conformance so that Seller can verify reproducibility, (b) a software patch or bug fix, if available or a workaround to bypass the issue if available, and (c) where applicable, replacement or damaged or defective external media, such as CD-ROM disk, on which the software was originally delivered;

(ii) Seller does not warrant that the use of any software will be uninterrupted, error-free, free of security vulnerabilities or that the software will meet the customer's particular requirements; and the customer's sole and exclusive remedy for breach of this warranty is, at Seller's option, to receive (a) suitably modified software, or part thereof, or (b) comparable replacement software or part thereof;

(iii) Seller retains all right, title and interest in and to and ownership of all software (including all Core Product Software and Non-Core Software) including any and all enhancements, modifications and updates to the same; and

(iv) in some cases, the warranty on certain proprietary sub-assembly modules manufactured by third-party vendors and contained in Seller's products, third party software installed in certain of Seller's products, and on certain private-label products manufactured by third-parties for resale by Seller, will be of shorter duration or otherwise more limited than the standard Seller limited warranty.

In such cases, Seller's warranty with respect to such third-party proprietary sub-assembly modules, third-party software and private-label products will be limited to the duration and other terms of such third-party vendor's warranty, if any. In addition, certain products, that are not manufactured by Seller, but are resold by Seller, may carry the original OEM warranty for such products, if any.

The limited warranty set forth above does not apply to any product sold by Seller, which at the time of sale constituted a Refurbished/Closeout Product, the limited warranty for which is provided in the following paragraph.

Seller will at its sole option, either repair or replace (with a new or factory-reconditioned product, as Seller may determine) any product sold by Seller which at the time of sale constituted a refurbished or closeout item ("Refurbished/Closeout Product"), which is defective in materials or workmanship or fails to meet the applicable specifications that are in effect on the date of shipment of that product or fails to meet such other specifications as may have been expressly agreed upon in writing between the parties, for a period of ninety (90) days from the date of original purchase.

Notwithstanding the foregoing, in some cases the warranty on certain proprietary sub-assembly modules manufactured by third-party vendors and contained in Seller products, third party software installed in certain of Seller's products, and on certain private-label products manufactured by third-parties for resale by Seller will be of shorter duration or otherwise more limited than Seller limited warranty for Refurbished/Closeout Products.

In such cases, Seller's warranty for Refurbished/Closeout Products constituting such third party proprietary sub-assembly modules, third party software, and private-label products will be limited to the duration and other terms of such third-party vendor's warranty, if any. In addition, notwithstanding the foregoing, (i) certain Refurbished/Closeout Products that are not manufactured (but are resold) by Seller, may carry the original OEM warranty for such products, if any, which may be longer or shorter than Seller's limited warranty for Refurbished/Closeout Products. All sales of Refurbished/Closeout Products are final.

To obtain service under this warranty, the defective product, together with a copy of the sales receipt, serial number if applicable, or other satisfactory proof of purchase and a brief description of the defect, must be shipped freight prepaid to Seller at the following address: One Jake Brown Road, Old Bridge, New Jersey 08857.

This warranty does not cover failure of performance or damage resulting from (i) use or installation other than in strict accordance with manufacturer's written instructions, (ii) disassembly or repair by someone other than the manufacturer or a manufacturer-authorized repair center, (iii) misuse, misapplication or abuse, (iv) alteration, (v) exposure to unusual physical or electrical stress, abuse or accident or forces or exposure beyond normal use within specified operational or environmental parameters set forth in applicable product specifications, (vi) lack of reasonable care or (vii) wind, ice, snow, rain, lightning, or any other weather conditions or acts of God.

OTHER THAN THE WARRANTIES SET FORTH ABOVE, SELLER MAKES NO OTHER WARRANTIES OR REPRESENTATIONS OF ANY KIND, EXPRESS OR IMPLIED, AS TO THE CONDITION, DESCRIPTION, FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY, OR AS TO ANY OTHER MATTER, AND SUCH WARRANTIES SET FORTH ABOVE SUPERSEDE ANY ORAL OR WRITTEN WARRANTIES OR REPRESENTATIONS MADE OR IMPLIED BY SELLER OR BY ANY OF SELLER'S EMPLOYEES OR REPRESENTATIVES, OR IN ANY OF SELLER'S BROCHURES MANUALS, CATALOGS, LITERATURE OR OTHER MATERIALS. IN ALL CASES, BUYER'S SOLE AND EXCLUSIVE REMEDY AND SELLER'S SOLE OBLIGATION FOR ANY BREACH OF THE WARRANTIES CONTAINED HEREIN SHALL BE LIMITED TO THE REPAIR OR REPLACEMENT OF THE DEFECTIVE PRODUCT F.O.B. SHIPPING POINT, AS SELLER IN ITS SOLE DISCRETION SHALL DETERMINE.

SELLER SHALL IN NO EVENT AND UNDER NO CIRCUMSTANCES BE LIABLE OR RESPONSIBLE FOR ANY CONSEQUENTIAL, INDIRECT, INCIDENTAL, PUNITIVE, DIRECT OR SPECIAL DAMAGES BASED UPON BREACH OF WARRANTY, BREACH OF CONTRACT, NEGLIGENCE, STRICT TORT LIABILITY OR OTHERWISE OR ANY OTHER LEGAL THEORY, ARISING DIRECTLY OR INDIRECTLY FROM THE SALE, USE, INSTALLATION OR FAILURE OF ANY PRODUCT ACQUIRED BY BUYER FROM SELLER.

All claims for shortages, defects, and non-conforming goods must be made by the customer in writing within five (5) days of receipt of merchandise, which writing shall state with particularity all material facts concerning the claim then known to the customer.

Upon any such claim, the customer shall hold the goods complained of intact and duly protected, for a period of up to sixty (60) days. Upon the request of Seller, the customer shall ship such allegedly non-conforming or defective goods, freight prepaid to Seller for examination by Seller's inspection department and verification of the defect. Seller, at its option, will either repair, replace or issue a credit for products determined to be defective.

Seller's liability and responsibility for defective products is specifically limited to the defective item or to credit towards the original billing.

All such replacements by Seller shall be made free of charge f.o.b. the delivery point called for in the original order.

Products for which replacement has been made under the provisions of this clause shall become the property of Seller.

Under no circumstances are products to be returned to Seller without Seller's prior written authorization. Seller reserves the right to scrap any unauthorized returns on a no-credit basis.

Any actions for breach of a contract of sale between Seller and a customer must be commenced by the customer within thirteen (13) months after the cause of action has accrued.

A copy of Seller's standard terms and conditions of sale, including the limited warranty, is available from Seller upon request.

Copies of the limited warranties covering third-party proprietary sub-assembly modules and private-label products manufactured by third-parties may also be available from Seller on request. (Rev 0713) .



www.blondertongue.com

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